Total Marks	200

505

MATHS

(English Medium)

Category
A

505-MATHS

A 50500721

SEAL SEAL SEAL SEAL SEAL SEAL

Seat No. of the Candidate

Block No. of the Candidate

Signature of the Candidate

Signature of the Block Supervisor

Important Instructions for Candidates	
(1)	Please do not open the question booklet until you are told to do so.
(2)	During examination, if a candidate is found having any literature guide, guide, piece of paper, handwritten or printed paper, mobile phone, calculator, spy camera, headphone or any other equipments then the candidate will be considered as disqualified.
(3)	During the examination if candidates are found conversing with each other, making noise or not following supervisor's instructions then they will be considered as disqualified.
(4)	After receiving question paper please write your seat number in **OMR SHEET** at the correct given place.
(5)	Please do not write your seat number at any other place than the allotted one in the **OMR SHEET** and if any sign of your identity or recognition is found then you will be considered totally disqualified for the examination.
(6)	Signatures of both the supervisor and the candidate in the certificate of **OMR SHEET** are compulsory without which **OMR SHEET** will not be evaluated, so it is compulsory for the candidate to get signature of the supervisor.
(7)	Candidates can use blue/black ball pen. They cannot use pens or pencils of any other colour and also whitener.
(8)	No marks should be made on any of the options in the question paper.
(9)	There are total 200 questions in this question paper. There is only one answer to each question from the options A, B, C and D. Four options are given for each question. All the questions are compulsory. Example: What is the capital of Gujarat? (A) Ahmedabad (B) Gandhinagar (C) Vadnagar (D) Patan Here, if option (B) Gandhinagar is correct then option (B) in the **OMR SHEET** will have to be darkened with pen. Ⓐ●ⒸⒹ
(10)	One(1) mark is allotted to each correct answer. For each wrong answer 0.25 marks will be deducted. If a candidate does not want to answer any question then he/she will have to select option E. Negative marking will not be applicable for option E.
(11)	Cross marked answers, answers given on more than one option and answers re-marked after use of blade, eraser or whitener will be given **Negative 0.25 marks.**
(12)	Please hand over the **OMR SHEET** to the block supervisor after completion of examination before leaving the classroom. Any candidate failing to do so will be considered as disqualified for the examination.
(13)	Maximum time allotted for the examination is 180 minutes.
(14)	Most appropriate option will be considered as answer of the question.

(1) How many Indian languages have been declared endangered by UNESCO

(A) 195 (B) 196 (C) 189 (D) 197

(2) The National Education Policy (NEP) 2020, integrates _____ to root education in ancient knowledge of India and its contribution in modern India.

(A) Knowledgeable India (B) Indian Knowledge System

(C) Modern India (D) Ancient India

(3) The full form of PARAKH is _____.

(A) Private Assessment, Report and Analysis of Knowledge for Holistic

(B) Performance Assessment, Review and Analysis of Knowledge for Holistic development

(C) Performance Assistant, Review and Analysis of knowledge for Holistic development

(D) Personal Assistant, Review and Analysis of Knowledge for Holistic development.

(4) A scientist of Indian origin who made groundbreaking contribution in the study of DNA was_____.

(A) Radha Krushnan (B) Amartya Sen

(C) Hargovind Khurana (D) Dr. A.P.J. Abdul Kalam

(5) The Three Tier Panchayati Raj System was recommended by _____.

(A) Mactapl Committee (B) British Committee

(C) Sevak Committee (D) Balwantrai Mehta Committee

(6) Commonwealth Games were previously known as_____.

(A) European Games (B) Euro – Asian Games

(C) Common Games (D) British Empire Games

(7) Who appoints CAG?

(A) Prime Minister (B) President

(C) Vice-President (D) Chief – Minister

(8) The battle between Porus and Sikander was fought on the bank of _____ river.

(A) Chenab (B) Ravi

(C) Satluj (D) Jhelum

(9) "Who among the following reigned during the Anno Domini Period?"

(A) Chandragupt Maurya
(B) King Ashok
(C) Khilji Dynasty and Tughlaq Dynasty
(D) Bindusara

(10) _____ is the most renowned form of dance of Maharashtra.

(A) Ghumar
(B) Kalbeliya
(C) Kachhighodi
(D) Laavani

(11) _____ was invented by Michael Faraday?

(A) Penicillin
(B) Periodic Table
(C) Precious Metal - Radium
(D) Conversion of Kinetic Energy into Electric energy

(12) _____ among the following was written by Manubhai Pancholi (Darshak)

(A) Upanas
(B) Socrates
(C) Anunay
(D) Hayaati

(13) Anup Kumar is a renowned _____ player.

(A) Kho – Kho
(B) Kabaddi
(C) Cricket
(D) Football

(14) _____ was Suggested by Swami Vivekanand to Promote nationalism in India.

(A) Pride of the nation
(B) Public awareness and upliftment of the poor
(C) Inclusive Vision
(D) Cultural Pride

(15) _____ is not a renewable energy resource.

(A) Forest
(B) Wind
(C) Natural Gas
(D) Sunlight

(16) _____ was considered as the "Soul of Indian constitution" by Dr. B. R. Ambedkar.

(A) Right to Education

(B) Cultural and Educational Right

(C) Right to go against exploitation

(D) Right to the Constitutional Remedies

(17) Panchayati Raj Institutions came to exist on ____ in Gujarat.

(A) 1st May, 1960

(B) 20th April, 1993

(C) 15th August, 1947

(D) 1st April, 1963

(18) _____ is not founded by the Government to implement the recommendations of Mudaliar Commission 1953.

(A) Rural Higher Education Committee

(B) University Grants Commission

(C) All India Education Council

(D) All India Council of Sports

(19) Astronaut Sunita Williams has an ancestral link with_____.

(A) Karnal, Haryana

(B) Vadodara, Gujarat

(C) Mahesana, Gujarat

(D) Kurukskhetra, Haryana

(20) _____ hosted the Kabaddi World Cup 2025.

(A) India

(B) England

(C) South Korea

(D) Malaysia

(21) Open and Distance Learning (ODL) is included in ____ education.

(A) Formal

(B) Informal

(C) Non-formal

(D) None of the above

(22) "I never teach my pupils; I only attempt to provide the conditions in which they can learn" who quoted it?

(A) Maharshi Arvind

(B) Albert Einstein

(C) Pestology

(D) Eric Crome

(23) "A person must use the development of his individuality by aligning it to the social needs and ideals." This is _____ aim of education.

(A) an Individual
(B) a Social
(C) a Peculiar
(D) a Sovereign

(24) _____ described education as a tri-polar process consisting of the teacher the learner the social environment or syllabus as a third pole".

(A) John Dewey
(B) John Adams
(C) Herbert Spencer
(D) Benjamin S. Bloom

(25) Idealism is also known as_____.

(A) Idealism
(B) Realism
(C) Naturalism
(D) Pragmatism

(26) John Dewey, Kilpatrick, and Mahatma Gandhi advocated_____.

(A) Existentialism
(B) Naturalism
(C) Idealism
(D) Pragmatism

(27) Social and National Integration can be attained through_____.

(A) Joint Family
(B) Requirement of Food
(C) Democracy
(D) Population growth

(28) What kind of education enables human to utilize free time more joyful and productive activities?

(A) Non-formal Education
(B) Continuing Education
(C) Life-long Education
(D) Education through correspondence

(29) The cultural objective of education emphasizes on_____.

(A) to enrich a person with knowledge
(B) to inculcate ideals and morals in life
(C) to Transfer Knowledge, Art, Literature, Music from generation to generation.
(D) to enable a person to earn livelihood

(30) "Human bears the competency of adapting to the situation and adapting one's needs to the situation" ____ form of pragmatism supports it.

(A) Nominalistic Pragmatism
(B) Experimental Pragmatism
(C) Biological Pragmatism
(D) Humanistic Pragmatism

(31) A person with IQ score 100, is placed in _____ category.

(A) Average Intelligence
(B) High Intelligence
(C) Lower Intelligence
(D) Superior Intelligence

(32) ____ type of Psychological conflict do Students Face when they neither want to stay at home nor go to school?

(A) Approach – Avoidance
(B) Approach – Approach
(C) Avoidance – Avoidance
(D) Dual Approach Avoidance

(33) A Psychologist who believed that "Motivation is cyclic"

(A) Lipid
(B) C.T. Morgan
(C) Lewin
(D) Emilicuma

(34) Which test is used to detect mental retardation among children?

(A) Achievement Test
(B) Reading Test
(C) Through General Observation
(D) Intelligence Test

(35) The full form of GATB is _____.

(A) Great Attitude Test Box
(B) Global Attitude Test Book
(C) Global Aptitude Test Book
(D) General Aptitude Test Battery

(36) ____ is placed the first among eight stages of Robert Gagne's approach.

(A) Stimulus – Response Approach
(B) Verbal – Association Approach
(C) Problem – Solving Approach
(D) Chaining Approach

(37) "Trial and Error Principle" of Thorndike is known as _____.

(A) Stimulus – Response Approach

(B) Theory of operant conditioning

(C) Cognitive Learning Theory

(D) Principle of motivation

(38) After fulfilling basic Physiological need, the next level in Maslow's Hierarchy of needs is_____.

(A) Love and Belongingness

(B) Esteem Needs

(C) Self–Actualization needs

(D) Safety Needs

(39) The measurement of intelligence was first successfully introduced by_____.

(A) Garrett and Menttest

(B) Binet and Simon

(C) Crow and Crow

(D) Thurston and Speareman

(40) The learning graph remains extended and horizontal during _____ temporary stage.

(A) Learning

(B) Maturity

(C) Plateau

(D) End

(41) To counsel a student towards the most suitable field of learning and future profession, educator usually rely on _____ test.

(A) Intelligence Test

(B) Personality Measurement Test

(C) Aptitude Test

(D) Diagnostic Test

(42) To enable a student to develop their creativity fully and completely, maximum importance should be given to_____.

(A) Process

(B) Idea

(C) Excellence

(D) Creativity

(43) While framing the teaching method in curriculum development, _____ state of students require prior consideration.

(A) Mental

(B) Physical

(C) Emotional

(D) Holistic

(44) _____ is Pre-requisite in order to promote concentration in Students.

(A) Proficiency of Teacher

(B) Selection of proper method, congruent to the unit

(C) Age level

(D) Mental level

(45) Any action that is derived from internal motivation and different from temptation is called____.

(A) Improper

(B) Motivation

(C) Eligibility

(D) Distress

(46) Classroom behaviour generally observes total ____ types of interactions.

(A) Five

(B) Two

(C) Three

(D) One

(47) Bakum developed an evaluation process to measure ____ development of student.

(A) Physical

(B) Mental

(C) Holistic

(D) Social

(48) ____ has released an education from the bandage of Time, Collection and number.

(A) Internet

(B) Technology

(C) Website

(D) Open University

(49) The research that scientifically studies the daily problems of the school is called, _____ research.

(A) Pragmatic

(B) Action

(C) Conditioning

(D) Visiting

(50) To find out the mid-point of the given group, _____ is calculated

(A) Median

(B) Mode

(C) Mean

(D) Any of the above

(51) _____ is also known as Skinnerian Instruction.

(A) Branchial Instruction

(B) Linear Instruction

(C) Mathematical Instruction

(D) All of the above

(52) Ned Flanders' Interaction analysis categories comprises Ten main categories, out of that three are,

(i) Teacher's Talk

(ii) Pupil's Talk

(iii) Silence

Which of the following shows the correct order?

(A) (i) 7 (ii) 1 (iii) 2

(B) (i) 4 (ii) 4 (iii) 2

(C) (i) 6 (ii) 3 (iii) 1

(D) (i) 7 (ii) 2 (iii) 1

(53) _____ is a correct formula for calculating Percentile Rate.

(A) $PR = 100 - \frac{(100R - 50)}{N}$

(B) $PR = 100 \frac{(100R - 50)}{N}$

(C) $PR = 100 - \frac{(50R - 100)}{N}$

(D) $PR = 1 - \frac{(100R - 50)}{N}$

(54) _____ is a correct mean of 6, 9, 10, 12, 16, 17.

(A) 10

(B) 11

(C) 17

(D) 12

(55) "Teacher uses the change in gestures, modulation of voice and hands' movement so that students sta focused" – This is mainly applied in____ skill.

(A) Introductory

(B) Illustration

(C) Learning aids Experiment Skill

(D) Stimulus change

(56) _____ will replace the (?)

3000, 1500, 500, 125, (?)

(A) 100 (B) 50 (C) 25 (D) 20

(57) 'A' is the sister of 'B'. 'C' is the mother of 'B'. 'D' is the father of 'C'. Then D is the _____ of A.

(A) Maternal Uncle (Mama)

(B) Father

(C) Maternal Uncle (Maasa)

(D) Maternal Grandfather

(58) _____ among the following cannot be framed by using the letter of word

"I N D E PE N D E N C E"

(A) NICE

(B) PINE

(C) PENDING

(D) INDEED

(59) Kavya begins to walk to the south from point A. She turns left after walking 30 metres. Then she walks 40 metres straight and reaches the point 'B'. Now find the distance between 'A' and 'B'.

(A) 50 metres

(B) 35 metres

(C) 70 metres

(D) 120 metres

(60) If B=2, BAG = 10 then find the value of BOX.

(A) 11

(B) 12

(C) 41

(D) 42

(61) Find the correct odd one from the following.

(A) DEGJ

(B) MNPS

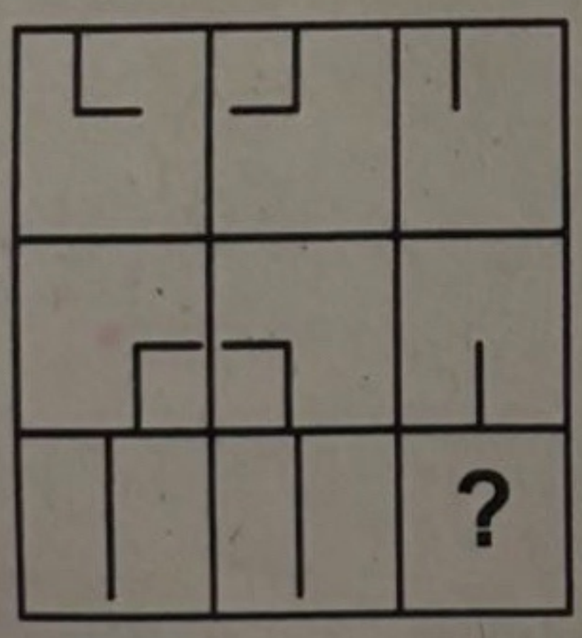
(C) PQTX

(D) TUWZ

(62) Five friends are sitting in a line, A is sitting right to B, but not sitting the first. C is sitting left to D. If B is sitting right to E then who is exactly in the middle?

(A) A (B) B (C) D (D) E

(63) Figure is given. _____ among the option correctly replaces (?).



(A) 

(B) 

(C) 

(D) 

(64) 34, 18, 10, 6, 4, _____.

(A) 0 (B) 1 (C) 2 (D) 3

(65) If DOG is coded as '4157' Then LION will be_____.

(A) 1271514 (B) 1291514

(C) 1291312 (D) 1181514

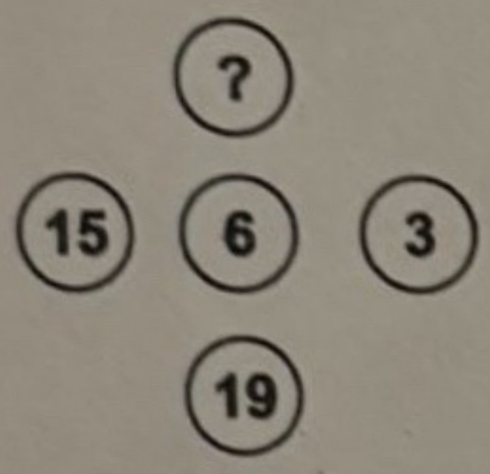
(66) There are total 65 students in a line. A stands 36th from the left, B Stands 36th from the right then tota

_____ students must be standing between both A and B.

(A) 9 (B) 13

(C) 15 (D) 11

(67) _____ will replace the (?)



(A) 91 (B) 610

(C) 691 (D) 587

(68) Thermometer : Temperature :: Earthquake : _____.

(A) Scale (B) Seismograph

(C) Anemometer (D) Odometer

(69) The angle formed by the minute and hour hands at 4:00 pm is _____.

(A) 120° (B) 100°

(C) 80° (D) 60°

(70) _____ among the following will stay first if arranged in alphabetical order.

(A) Overbid (B) Outstanding

(C) Oval (D) Outstep

(71) કયા વાક્યમાં અવ્યયનો ઉપયોગ થતો નથી ?

(A) તે પાસ થયો કેમ કે તેણે ખૂબ મહેનત કરેલી.

(B) શાબાશ છે એ બહાદૂર જુવાનને !

(C) એ પ્રાણઘાતક અકસ્માતથી તે મરી જાત.

(D) એ ચોરની પેઠે ઘરમાં ઘૂસ્યો.

(72) કયું વાક્ય કર્મણિ પ્રયોગમાં નથી ?

(A) તને વિમાન દેખાય છે ?

(B) મેં શીર્ષાસન કર્યું.

(C) મને વાત સમજાય છે.

(D) મારે આસને બેસવું છે.

(73) A સાથે Bનાં સાચાં જોડકાં દર્શાવતો વિકલ્પ કયો છે ?

A	B
(a) લખવાનું આપોને	(i) ભવિષ્યકૃદંત
(b) માગ્યા મેહ વરસે નહીં	(ii) સંબંધક ભૂ.કૃ.
(c) લખી લખીને થાક્યો	(iii) હેત્વર્થ
(d) વાંચવા આવજો	(iv) ભૂતકૃદંત

(A) (a) i, (d) ii, (b) iii, (c) iv

(B) (b) i, (c) ii, (d) iii, (a) iv

(C) (c) i, (b) ii, (d) iii, (a) iv

(D) (a) i, (c) ii, (d) iii, (b) iv

(74) કયા જોડકામાંના શબ્દો એક પ્રકારનો જ સમાસ દર્શવિ છે ?

(A) તપોધન, પાઠ્યેતર

(B) ઘનશ્યામ, કાપુરુષ

(C) કલ્પલતા, શ્રીયુત

(D) શેષશાયી, સ્વચ્છંદ

(75) એ શબ્દ શોધો કે જેનો અર્થ અન્ય કરતાં ભિન્ન છે.

(A) પુંડરિક (B) પર્યંક (C) રાજીવ (D) શતદલ

(76) સાચી જોડણી પસંદ કરો.

(A) હિમસૂતા

(B) હીમસુતા

(C) હીમસૂતા

(D) હિમસુતા

(77) એ, થી, થકી, વડે વગેરે પ્રત્યયો કઈ વિભક્તિમાં આવે છે ?

(A) સંપ્રદાન

(B) અપાદાન

(C) સંબંધ

(D) કરણ

(78) પોતાની વાતને કે વિષયને સ્પષ્ટ કરવાનો પ્રયત્ન કરતા ગદ્યને કયા પ્રકારનું ગદ્ય કહેવામાં આવે છે ?

(A) વાદાત્મક

(B) વિવરણાત્મક

(C) વર્ણનાત્મક

(D) ભાવાત્મક

(79) તમતમારે, જુદાજુદા, દૂરદૂરથી વગેરે કયા પ્રકારના શબ્દો છે ?

(A) નામયોગી શબ્દો

(B) સંયુક્ત શબ્દો

(C) સામાસિક શબ્દો

(D) દ્વિરુક્તિવાળા શબ્દો

(80) નીચેનામાંથી પરિમાણવાચક વિશેષણ જણાવો.

(A) આટલું

(B) આવું

(C) કડવું

(D) પહેલું

(81) નીચેનામાંથી કયા વિકલ્પમાં તમામ શબ્દોની જોડણી વ્યાકરણની દૃષ્ટિએ સંપૂર્ણ સાચી છે ?

(A) શારીરિક, આશીર્વાદ, જિજ્ઞવિષા, સુશ્રુષા

(B) શારીરિક, આશીર્વાદ, જિજ્ઞવિષા, શુશ્રૂષા

(C) શારિરીક, આશિર્વાદ, જીજ્ઞવિષા, શુશ્રુષા

(D) શારીરીક, આશિર્વાદ, જિજ્ઞવીષા, શુશ્રૂષા

(82) નીચેનામાંથી કયો શબ્દ 'અશ્વ'નો પર્યાયવાચી શબ્દ નથી ?

(A) હાય

(B) વાજી

(C) તોખાર

(D) કુંજર

(83) વાક્યશુદ્ધિના નિયમ અનુસાર નીચેનામાંથી વ્યાકરણની દૃષ્ટિએ શુદ્ધ વાક્ય પસંદ કરો.

(A) મેં આજે એક ગાય અને એક બળદને આવતી જોઈ.

(B) મેં આજે એક ગાય અને એક બળદ આવતાં જોયાં.

(C) મેં આજે એક ગાય અને એક બળદ આવતા જોયો.

(D) મેં આજે એક ગાય અને બળદને આવતી જોઈ.

(84) નીચેના વાક્યમાં વ્યાકરણીય રીતે કયો શબ્દપ્રયોગ ખોટો છે ? "તેણે મને સહૃદયતાપૂર્વક આવકાર આપ્યો."

(A) તેણે

(B) સહૃદયતાપૂર્વક

(C) આવકાર

(D) આપ્યો

(85) લેખનકાર્ય કરતી વખતે વાક્યના અંતે કે વચ્ચે કોઈ વિગત લખવાની બાકી રહી ગઈ હોય, ત્યારે તેને ઉમેરવા કયા ચિહ્નનો ઉપયોગ થાય છે ?

(A) લોપચિહ્ન (')

(B) કાકપદ / હંસપદ (^)

(C) લઘુરેખા (–)

(D) ફુદડી (*)

(86) Pair the words with their antonyms.

Words	Antonyms
(a) lazy	(i) diligent
(b) active	(ii) blunt
(c) sharp	(iii) inert
(d) fertile	(iv) barren

(A) (c) i, (d) ii, (a) iii, (b) iv
(B) (a) ii, (c) iii, (b) i, (d) iv
(C) (c) ii, (d) i, (b) iii, (a) iv
(D) (a) i, (d) iii, (c) ii, (b) iv

(87) Which word has no suffix.

(A) Health
(B) Library
(C) Embrace
(D) Marriage

(88) Find out the odd pair.

(A) proud - pride
(B) bond - bind
(C) grieve - grief .
(D) lose - loss

(89) Arrange these sentences in proper order to describe an accident-scene.

(i) Passengers were told to be ready to quit the ship.

(ii) Everyone knew there was fire on board.

(iii) Smoke oozed up between the planks.

(iv) Flames broke out here and there.

(v) Most people bore the shock bravely.

(A) iii, ii, v, iv, i
(B) i, ii, iv, iii, v
(C) iv, iii, ii, v, i
(D) iii, iv, ii, i, v

(90) Select the sentence with almost similar meaning to the sentence "At the moment the duck looked exhausted."

(A) The duck looked dreadful
(B) The duck was looking for a place to hide
(C) The duck looked very tired.
(D) The duck seemed unhappy.

(91) Put proper preposition in the blank. He was looking ..... his lost keys.

(A) at
(B) for
(C) after
(D) into

(92) ..... he finds a job, his family will starve. Fill in the blank with proper word.

(A) It (B) Unless (C) As (D) However

(93) The harder you work, the ..... result you will get.

(A) good (B) best

(C) better (D) lower

(94) Select the similar word for Inventory.

(A) Summary (B) Schedule

(C) Index (D) Questionnaire

(95) All the crows are black. We ..... find a white crow, put proper adverb to complete the sentence

(A) frequently (B) usually

(C) rarely (D) always

(96) Which expression best conveys the idea ?

(A) During the curfew, the streets wearing desolate look.

(B) During the curfew, the streets wore a desolate look.

(C) During the curfew, the streets have had worn desolate looks

(D) During the curfew, the streets has been wearing desolation looks

(97) What is the correct noun form of the verb 'compel' ?

(A) Compelation (B) Compulsion

(C) Compulsory (D) Compellment

(98) Fill in the blank with the correct preposition : "The committee is totally opposed ..... the new proposal."

(A) for (B) against

(C) to (D) with

(99) Fill in the blanks with appropriate articles : "He is ..... heir to the throne and ..... honest man."

(A) a, a (B) an, a (C) an, an (D) the, a

(100) Identify the correct verb according to subject-verb Agreement : "Neither the principal nor the teachers ..... present at the meeting yesterday."

(A) was (B) were (C) are (D) is

(101) $\{x : xy = 1, x, y \in N\} =$ _____.

(A) Null set

(B) Singleton set

(C) Infinite set

(D) Two element set

(102) If $Na = \{an : n \in N\}$ then $N_5 \wedge N_7 =$ _____

(A) N_5

(B) N_7

(C) N_{12}

(D) N_{35}

(103) For two sets A and B, $(A - B) \cup (B - A) =$ _____

(A) $(A \cup B) - (A \cap B)$

(B) $(A - B) \cup A$

(C) $(B - A) \cup B$

(D) $(A \cup B) \cap (A \cup B)$

(104) Domain of the function, $f(x) = \frac{x^2 + 2x + 1}{x^2 - 8x + 12}$ is _____.

(A) $R - \{2, 6\}$

(B) $[2, 6]$

(C) $\{2, 6\}$

(D) $(2, 6)$

(105) Let $f : R \to R, f(x) = \frac{x^2}{x^2 + 1}$, then Range of f is _____

(A) $(-1, 0)$

(B) $(-1, 1)$

(C) $[0\ 1)$

(D) $\{1\}$

(106) If $\tan\theta = 3$ and θ lies in third quadrant, then the value of $\sin\theta$ is _____.

(A) $\frac{1}{\sqrt{10}}$

(B) $\frac{-3}{\sqrt{10}}$

(C) $\frac{-1}{\sqrt{10}}$

(D) $\frac{3}{\sqrt{10}}$

(107) The value of $\frac{1 - \tan^2 15°}{1 + \tan^2 15°} =$ _____

(A) $\frac{\sqrt{3}}{2}$

(B) 1

(C) $\sqrt{3}$

(D) 2

(108) The value of $\cos 1° \cdot \cos 2° \cdot \cos 3° \ldots\ldots\ldots \cos 179° =$ _____

(A) $\frac{1}{\sqrt{2}}$ (B) 0

(C) 1 (D) –1

(109) $2\sin\left(7\frac{1}{2}\right)^{\circ} \cdot \cos\left(7\frac{1}{2}\right)^{\circ} \cdot \cos 15° =$ _____.

(A) $\frac{1}{\sqrt{2}}$ (B) $\frac{1}{2}$

(C) $\frac{1}{4}$ (D) $\frac{\sqrt{3}}{2}$

(110) The value of $\sum_{r=1}^{10} i^r =$ _____ (Where $i=\sqrt{-1}$)

(A) 1 (B) 0 (C) – 1 (D) i

(111) If a complex number lies in third quadrant then its conjugate lies in _____ quadrant.

(A) First (B) Second (C) Third (D) Fourth

(112) If $\alpha_1 \beta$ are roots of the equation $x^2 - x + 1 = 0$, then $\alpha^{2021} + \beta^{2021} =$ _____.

(A) –1 (B) 0 (C) 2 (D) 1

(113) If x, y and b are real numbers with $x < y$ and $b < 0$ then _____.

(A) $\frac{x}{b} > \frac{y}{b}$ (B) $\frac{x}{b} \leq \frac{y}{b}$

(C) $\frac{x}{b} < \frac{y}{b}$ (D) $\frac{x}{b} \geq \frac{y}{b}$

(114) If $|x-1| > 5$, then $x \in$ _____

(A) $(-4, 6)$ (B) $(-\infty, -4) \cup (6, \infty)$

(C) $[-\infty, -4] \cup [6, \infty]$ (D) $[-4, 6]$

(115) Number of three digit even numbers that can be made using the digits 1, 2, 3, 4, 6, 7, if r repeated _____.

(A) 30 (B) 20 (C) 60 (D) 120

16) If $n_{C_8} = n_{C_2}$ then n_{C_2} = _____.

(A) 30 (B) 120 (C) 60 (D) 45

17) The number of triangles that are formed by choosing the vertices from a set of 12 points seven of which are – collinear. _____

(A) 175 (B) 185 (C) 15 (D) 105

18) Number of terms in the expansion of $(x^2-4x+4)^9$ are_____.

(A) 10 (B) 9 (C) 18 (D) 19

19) $n_{C_1} + n_{C_2} + n_{C_3} + ... + n_{C_{n-1}}$ = _____.

(A) 2^n (B) $2^n - 1$ (C) $2^n - 2$ (D) $2^n + 1$

20) Remainder when $-(27)^{999}$ is divided by 7 is _____.

(A) 1 (B) 2 (C) 3 (D) 6

21) Value of $3^{\frac{1}{2}} \times 3^{\frac{1}{4}} \times 3^{\frac{1}{8}} \times ...$ up to infinity is _____.

(A) 9 (B) 27 (C) 3 (D) 81

22) 10 is G.M. between 5 and x then x = _____.

(A) 10 (B) 5 (C) 50 (D) 20

23) Slope of a line which has equal intercept on ones is _____.

(A) 0 (B) 2 (C) $\sqrt{3}$ (D) –1

24) Perpendicular distance from (–3,–4) to the line $12x - 5y + 81 = 0$ is _____.

(A) 6 (B) 10 (C) 5 (D) 81

25) The angle between the lines $x + y = 0$ and $x = 0$ is _____

(A) $\frac{3\pi}{4}$ (B) $\frac{\pi}{4}$

(C) $\frac{\pi}{3}$ (D) $\frac{\pi}{2}$

26) Centre of circle passes from (0, 0), (a, 0) and (0, b) is _____.

(A) (a, b) (B) (b, a) (C) $\left(\frac{a}{2}, \frac{b}{2}\right)$ (D) $\left(\frac{b}{2}, \frac{a}{2}\right)$

(127) (5, 2) and (3, 4) are end points of latus-rectum of a parabola, then its focus is _____.

(A) (5, 2)
(B) (2, 5)
(C) (3, 4)
(D) (4, 3)

(128) Eccentricity of ellipse $gx^2+25y^2=225$ is _____.

(A) $\frac{3}{5}$
(B) $\frac{4}{5}$
(C) $\frac{2}{5}$
(D) $\frac{1}{5}$

(129) Length of conjugate axis of $12x^2-3y^2=-36$ is _____.

(A) $4\sqrt{3}$
(B) $\sqrt{3}$
(C) $2\sqrt{3}$
(D) $6\sqrt{3}$

(130) A plane is parallel to yz plane so it is perpendicular to _____.

(A) X – axis
(B) Y – axis
(C) Z – axis
(D) can't be said

(131) The length of foot of perpendicular drawn from the point (3,4,5) on Y – axis is _____.

(A) $\sqrt{41}$
(B) $\sqrt{34}$
(C) 5
(D) $5\sqrt{2}$

(132) $\lim_{x\to 0}\frac{\tan(5x)-3x}{4x-\sin(2x)}=$_____.

(A) $\frac{5}{3}$
(B) $\frac{3}{4}$
(C) $\frac{-2}{3}$
(D) 1

(133) $\lim_{x\to 2}\frac{n^n-2^n}{x-2}=80$ then $n=$_____.

(A) 2
(B) –3
(C) 5
(D) 6

(134) $\lim_{x\to 1}\frac{x+x^2+x^3+\ldots x^n-n}{x-1}=$_____.

(A) $\Sigma 1$
(B) Σn
(C) Σn^2
(D) Σn^3

(135) $\frac{d}{dx}\sqrt{x^2-2x+1}$ = where $x \in [-2,-1]$

(A) 0

(B) 1

(C) Does not exist

(D) –1

(136) The standard deviation for the following data is _____.

$n=10, \Sigma x=60, \Sigma x^2=1000$

(A) 8

(B) 64

(C) 24

(D) 128

(137) The variance of 15 observation is multiplied by 4, then the variance of new observations is _____.

(A) 32 (B) 24 (C) 128 (D) 8

(138) In a non leap year, the probability of having 53 Tuesday or 53 Wednesday is_____.

(A) $\frac{1}{7}$

(B) $\frac{2}{7}$

(C) $\frac{3}{7}$

(D) $\frac{4}{7}$

(139) If $P(A \cup B)=P(A \cap B)$, for any two events A and B then_____.

(A) $P(A)=P(B)$

(B) $P(A)>P(B)$

(C) $P(A)<P(B)$

(D) $P(A)=-P(B)$

(140) The probability that at least one of the events A and B occurs is 0.6. If A and B occur simultaneous with probability 0.2, then $P(A')+P(B')$ =_____.

(A) 1.2

(B) 0.4

(C) 0.8

(D) 1.6

(141) If $x=\cos^{-1}\left(\frac{4}{5}\right), y=\tan^{-1}\left(\frac{2}{3}\right) x, y \in \left(0, \frac{\pi}{2}\right)$ then $x-y=$_____

(A) $\sin^{-1}\frac{2}{5}\sqrt{13}$

(B) $\tan^{-1}\frac{1}{17}$

(C) $\cos^{-1}\frac{1}{5\sqrt{13}}$

(D) $\sin^{-1}\frac{1}{5\sqrt{13}}$

(142) $\tan^{-1}\left(\frac{1}{2}\tan 2A\right)+\tan^{-1}(\cot A)+\tan^{-1}(\cot^3 A)=$_____.

if $4A\in(0,\pi)$

(A) 0 (B) π (C) $-\pi$ (D) 2π

(143) The number of real solutions of $\tan^{-1}\sqrt{x(x+1)}+\sin^{-1}\sqrt{x(x+1)+1}=\frac{\pi}{2}$ is_____.

(A) 0 (B) 1 (C) 2 (D) Infinite

(144) $f(x)=\sin^{-1}x+\tan^{-1}x+\sec^{-1}x$ then range of $f(x)$ is_____.

(A) $\left(-\frac{\pi}{2},\frac{\pi}{2}\right)$ (B) $\left(-\frac{\pi}{4},\frac{\pi}{4}\right)$

(C) R (D) $\left(\frac{\pi}{4},3\frac{\pi}{4}\right)$

(145) $\cot\left(2026\pi-\left\{\text{cosec}^{-1}\frac{5}{3}+\sec^{-1}\frac{5}{4}\right\}\right.$

(A) $\frac{7}{24}$ (B) $\frac{24}{7}$ (C) $\frac{-7}{24}$ (D) $\frac{-24}{7}$

(146) $y=\cos^{-1}2x+2\cos^{-1}\sqrt{1-4x^2}$ then $\frac{dy}{dx}=$_____. If $x<0$

(A) $\frac{2}{\sqrt{1-4x^2}}$ (B) $\frac{4}{\sqrt{1-4x^2}}$

(C) $\frac{-6}{\sqrt{1-4x^2}}$ (D) $\frac{1}{\sqrt{1-4x^2}}$

(147) If $\sqrt{1-x^2}+\sqrt{1-y^2}=a(x-y)$ then $\frac{dy}{dx}=$_____.

(A) $\sqrt{\frac{1-y^2}{1-x^2}}$ (B) $-\sqrt{\frac{1-x^2}{1-y^2}}$

(C) $-\sqrt{\frac{1-y^2}{1-x^2}}$ (D) $\sqrt{\frac{1-x^2}{1-y^2}}$

148) If $f(x)$ is continuous function at $x=0$ then $f(0)=$____.

Where $f(x)=\dfrac{(27-2x)^{\frac{1}{3}}-3}{9-3(243+5x)^{\frac{1}{5}}}, x\neq 0$

(A) $\frac{2}{3}$ (B) 6 (C) 2 (D) 4

149) $2^x+2^y=2^{x+y}$ then $\dfrac{dy}{dx}=$____.

(A) 2^{y-x} (B) -2^{y-x} (C) 2^{x-y} (D) -2^{x-y}

150) $y=\sqrt{1-\sin 2x}$ $\dfrac{\pi}{4}<x<\dfrac{\pi}{2}$ then $\dfrac{dy}{dx}=$____.

(A) $\cos x-\sin x$ (B) $\sin x-\cos x$ (C) $\sin x+\cos x$ (D) $-2\cos 2x$

151) $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}=K[(a-b)^2+(b-c)^2+(c-a)^2]$ then K = ____.

(A) $a+b+c$ (B) $\dfrac{a+b+c}{2}$

(C) $-(a+b+c)$ (D) $-\dfrac{(a+b+c)}{2}$

152) $\begin{vmatrix} x & 4 & 6 \\ 2 & 3 & -9 \\ 5 & 6 & 1 \end{vmatrix}+\begin{vmatrix} 5 & 6 & 1 \\ 6 & 4 & 5 \\ 2 & 3 & -9 \end{vmatrix}=\begin{vmatrix} 2 & 3 & -9 \\ 2x-1 & -8 & -11 \\ 5 & 6 & 1 \end{vmatrix}$ then $x=$____.

(A) $\frac{5}{3}$ (B) $-\frac{5}{3}$

(C) $\frac{7}{3}$ (D) $-\frac{7}{3}$

153) If $\begin{vmatrix} x & 3 & -4 \\ \sin\theta & \cos\theta & \sin\theta \\ \cos\theta & \sin\theta & -\cos\theta \end{vmatrix}=0$ then range of x is ____.

(A) $[-5, 5]$ (B) $[-7, 7]$

(C) $[0, 7]$ (D) $[-7, 5]$

(154) $\begin{vmatrix} x+a & b & c \\ a & x+b & c \\ a & b & x+c \end{vmatrix} = 0$ then $x =$ _____.

(A) $0,(a+b+c)$

(B) $0,(-a+b+c)$

(C) $(a+b+c),-(a+b+c)$

(D) $0,-(a+b+c)$

(155) $f(x)=\begin{vmatrix} \cos x & 1 & 1 \\ 2\sin x & x & 2x \\ \tan x & 1 & 1 \end{vmatrix}$ then $\lim_{x\to 0} \frac{f(x)}{x} =$ _____.

(A) 0

(B) 1

(C) –1

(D) ∞

(156) If $A=\begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$

$A^{-1}=\frac{1}{10}\begin{bmatrix} 4 & 2 & 2 \\ -5 & 0 & \alpha \\ 1 & -2 & 1 \end{bmatrix}$ then $\alpha =$ _____.

(A) 5

(B) –5

(C) –2

(D) 2

(157) If $x=t^2, y=t^3$, then $\frac{d^2y}{dx^1}$ is_____.

(A) $\frac{3}{2}$

(B) $\frac{3}{4t}$

(C) $\frac{3}{2t}$

(D) $\frac{3}{4}$

(158) If $y=\tan^{-1}\left(\frac{\sin x+\cos x}{\cos x-\sin x}\right)$ then $\frac{dy}{dx}$ is equal to

(A) $\frac{1}{2}$

(B) 0

(C) 1

(D) None of these

(159) The total revenue in rupees received from the sale of x units of a product is given by $R(x)=3x^2+36x+5$. The marginal revenue, when $x=15$ is_____.

(A) 116

(B) 96

(C) 90

(D) 126

(160) The interval in which $y = x^2 e^{-x}$ is increasing is_____.

(A) $(-\infty, \infty)$

(B) $(-2, 0)$

(C) $(2, \infty)$

(D) $(2, 0)$

(161) The point on the curve $x^2 = 2y$ which is nearest to the point $(0, 5)$ is_____.

(A) $(2\sqrt{2}, 4)$

(B) $(2\sqrt{2}, 0)$

(C) $(0, 0)$

(D) $(2, 2)$

(162) A cylindrical tank of radius 10 m is being filled with wheat at the rate of 314 cubic metre per hour. Then the depth of the wheat is increasing at the rate of_____.

(A) 1 m/h

(B) 0.1 m/h

(C) 1.1 m/h

(D) 0.5 m/h

(163) $\int \frac{dx}{\sqrt{qx - 4x^2}}$ equals_____.

(A) $x \tan^{-1}(x+1) + c$

(B) $\tan^{-1}(x+1) + c$

(C) $(x+1)\tan^{-1} x + c$

(D) $\tan^{-1} x + c$

(164) $\int \frac{dx}{x(x^2+1)}$ equals_____.

(A) $\log|x| - \frac{1}{2}\log(x^2+1) + c$

(B) $\log|x| + \frac{1}{2}\log(x^2+1) + c$

(C) $-\log|x| + \frac{1}{2}\log(x^2+1) + c$

(D) $\frac{1}{2}\log|x| + \log(x^2+1) + c$

(165) The value of the integral $\int_{\frac{1}{3}}^{1} \frac{(x - x^3)^{\frac{1}{3}}}{x^4} dx$ is_____.

(A) 6

(B) 0

(C) 3

(D) 4

(166) The value of $\int_0^{\frac{\pi}{2}} \log\left(\frac{4 + 3\sin x}{4 + 3\cos x}\right) dx$ is_____.

(A) 2

(B) $\frac{3}{4}$

(C) 0

(D) –2

(167) Area of the region bounded by the curve $y^2=4x, y-axis$ and the line $y=3$ is____.

(A) 2

(B) $\frac{9}{4}$

(C) $\frac{9}{3}$

(D) $\frac{9}{2}$

(168) Area bounded by the curve $=x^3$, the x-axis and the ordinates $x=-2$ and $x=1$ is____.

(A) -9

(B) $\frac{-15}{4}$

(C) $\frac{15}{4}$

(D) $\frac{17}{4}$

(169) The number of arbitrary constants in the particular solution of a differential equation of third order are____.

(A) 3

(B) 2

(C) 1

(D) 0

(170) The Integrating Factor of the differential equation $x\frac{dy}{dx}-y=2x^2$ is____.

(A) e^{-x}

(B) e^{-y}

(C) $\frac{1}{x}$

(D) x

(171) The general solution of the differential equation $e^x dy+(ye^x+2x)dx=0$ is____.

(A) $x\,e^y+x^2=c$

(B) $x\,e^y+y^2=c$

(C) $y\,e^x+x^2=c$

(D) $y\,e^y+x^2=c$

(172) Probability that A speaks truth is $\frac{4}{5}$, A coin is tossed. A reports that a head appears. The probability that actually there was head is____.

(A) $\frac{4}{5}$

(B) $\frac{1}{2}$

(C) $\frac{1}{5}$

(D) $\frac{2}{5}$

(173) If $|\vec{a}|=10, |\vec{b}|=2$ and $|\vec{a}\times\vec{b}|$ is____.

(A) 5

(B) 10

(C) 14

(D) 16

(174) Corner points of the feasible region determined by the system of linear constraints are (0,3), (1, 1) and (3, 0). Let $Z = px + qy$, where $p, q > 0$ condition on p and q so that the minimum of Z occurs at (3, 0) and (1, 1) is____.

(A) $p = 2q$

(B) $p = \frac{q}{2}$

(C) $p = 3q$

(D) $p = q$

(175) Two events E and F are independent. If $P(E) = 0 \cdot 3, P(E/F) - P(F/E)$ equals

(A) $\frac{2}{7}$

(B) $\frac{3}{35}$

(C) $\frac{1}{70}$

(D) $\frac{1}{7}$

(176) A problem in Mathematics is given to three students A, B, C and their respective probability of solving the problem is $\frac{1}{2}, \frac{1}{3}$ and $\frac{1}{4}$, probability that the problem is solved is____.

(A) $\frac{3}{4}$

(B) $\frac{1}{2}$

(C) $\frac{2}{3}$

(D) $\frac{1}{3}$

(177) The region represented by the inequation $x - y \leq -1, x - y \geq 0, x \geq 0, y \geq 0$ is____.

(A) bounded

(B) unbounded

(C) do not exist

(D) triangular region

(178) $\vec{a} = \hat{2i} - \hat{3j} + \hat{6k}$ and $\vec{b} = -2\hat{i} + 2\hat{j} - \hat{k}$ then $\frac{proj_{\vec{b}}\vec{a}}{proj_{\vec{a}}\vec{b}} =$____

(A) $\frac{3}{7}$

(B) $\frac{7}{3}$

(C) 3

(D) 7

(179) The vector form of the line $3x + 1 = 6z - 2, y - 1 = 0$ is____.

(A) $\vec{r} = \left(\frac{-1}{3}, 1, \frac{1}{3}\right) + k(2,0,1), k \in R$

(B) $\vec{r} = (2,0,1) + k\left(\frac{-1}{3}, 1, \frac{1}{3}\right), k \in R$

(C) $\vec{r} = (-1,2,1) + k(1,1,1), k \in R$

(D) $\vec{r} = (1,1,1) + k(1,2,1), k \in R$

(180) If area of a triangle with vertices (1, 1) (3, 3) and (5, k) is 2 sq. units then the value of k=____.

(A) 2 or 3 (B) 3 or 4 (C) 4 or 7 (D) 3 or 7

(181) Aim of mathematics education is_____.

(A) Teaching formula

(B) Teaching numbers

(C) Teaching geometry

(D) Mathematization of child's thought

(182) Teachers are requested to select teaching methods based on_____.

(A) Interest of Parents

(B) Interest of Teacher

(C) The teaching subject and classroom demographic

(D) The direction given by administration

(183) Hypothesis to conclusion, concrete to abstract, simple to complex, are the characteristics____.

(A) Synthetic method (B) Analytic method

(C) Direct method (D) Indirect method

(184) Brain storming is a _____.

(A) Teaching activity (B) Teaching strategy

(C) Teaching method (D) Approach

(185) Seminar method _____.

(A) Reduces questioning skills

(B) Best for desocialisation

(C) A good traditional method

(D) Develops self reliance and self confidence

(186) FIACS is _____.

(A) Student talk oriented (B) Useful in team teaching and microteaching

(C) Cannot be used for in-service teacher (D) Not objective and reliable

(187) According to Edger-Dale Audio Visual Aids are termed as _____.

(A) Sens of Sigut

(B) Sensory objects

(C) Multi sensory materials

(D) Supplementary devices

(188) Perceptual learning styles are based on _____.

(A) Visual

(B) Audio

(C) Sensory

(D) Audio - Visual

(189) Which of the following softwares is used for teaching / learning mathematics _____.

(A) Dynamic geometry tools

(B) Operating system

(C) Java

(D) Windows

(190) Combination of traditional classroom teaching and ICT enhanced e-learning practices are called____.

(A) Support learning

(B) E-learning

(C) Online learning

(D) Blended learning

(191) World Math Day is celebrated in the month of _____.

(A) March

(B) May

(C) June

(D) July

(192) Which method is most suitable for teaching calculus concepts?

(A) Lecture method only

(B) Drill method

(C) Activity and discovery method

(D) Dictation method

(193) Diagnostic evaluation in Mathematics is used to :

(A) Give final grades

(B) Identify learning difficulties

(C) Promote students automatically

(D) Reduce syllabus

(194) Mathematics learning becomes meaningful when:

(A) Students memorize steps

(B) Students connect concepts with prior knowledge

(C) Teacher solves all problems

(D) Homework is maximum

(195.) Which approach promotes higher-order thinking in Mathematics?

(A) Rote learning

(B) Problem – Solving approach

(C) Repetition method

(D) Dictation

(196) To teach probability, the best starting point is____.

(A) Theoretical formulas

(B) Random experiments and real situations

(C) Long derivations

(D) Algebraic proofs

(197) Mathematical proof mainly develops:

(A) Writing speed

(B) Logical reasoning ability

(C) Memory only

(D) Drawing Skill

(198) Best evaluation for application skill:

(A) MCQ only

(B) Problem – based questions

(C) True / False

(D) Oral reading

(199) Motivation in Mathematics classroom leads to:

(A) Fear

(B) Active learning

(C) Silence

(D) Memorization

(200) Teaching aids mainly help in

(A) Decoration

(B) Better understanding

(C) Time pass

(D) Testing only

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